PIRT Summary to the 2002 Legislature

Pesticide Incident Reporting and Tracking Review Panel

Report on 2000 Incident Data

Environmental Health Programs

September 2002

Summary to the Legislature

Pesticide Incident Reporting and Tracking (PIRT) Review Panel

A report submitted by the **Department of Health** to the legislature as required by Chapter 380, Laws of 1989, and RCW 70.104.

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Data Summary

Four state agencies (Agriculture (WSDA), Health (DOH), Ecology, and Labor and Industries (L&I)) plus the Washington Poison Center (WPC) respond to concerns involving pesticides. In 2000, WSDA investigated 199 pesticide complaints, DOH responded to 302 incidents involving 388 individuals, L&I conducted 34 inspections concerning pesticide issues and received 180 claims involving pesticide exposures and the WPC registered 2,326 pesticide-related calls.

Table 1 lists the number of responses to pesticide-related reports by each agency for the years 1993-2000. In addition, agency staff respond to inquiries and requests about pesticide issues that are not included in the total numbers. Because of specific statutory responsibilities, incidents may be investigated by more than one agency.

In 2000, there was a slight increase in the number of complaints or calls reported to WSDA and DOH. The number of claims received by L&I continued the general decline observed since 1993. The number of calls to the WPC declined. The number of WSDA complaints and the number of calls to WPC have decreased by 50 percent since 1993.

Analysis of 2000 incident data suggests that occupational pesticide exposures are a continued concern. Educational efforts should be directed at the following areas: drift and overspray, pesticide handlers and applicators, tree fruit workers, respiratory protection and other personal protective equipment.

Table 1 Pesticide Incidents Reported by Agency and WPC 1993-2000

	1993	1994	1995	1996	1997	1998	1999	2000
WSDA Complaints	400	383	259	251	204	204	192	199
DOH Incidents	525	589	399	402	365	391	271	302
Individual Cases	696	691	503	504	441	476	332	388
L&I Inspections	17	14	24	39	20	36	37	34
Claims	290	241	245	222	235	269	183	180
WPC Calls	4,644	3,189	3,375	3,092	3,227	3,002	2,523	2,326

Introduction

The PIRT Panel is directed by state statute (RCW 70.104.090) to monitor state agency response to consumer concerns, to identify inadequacies in pesticide regulations that result in insufficient protection of public health, and to produce an annual report summarizing pesticide incidents. The PIRT Panel consists of representatives from the Washington State Departments of Agriculture, Ecology, Health, Labor and Industries, Natural Resources (DNR), Fish and Wildlife (WDFW), as well as the University of Washington (UW), Washington State University (WSU), Washington Poison Center, plus a practicing toxicologist and a member of the public.

The following summarizes year 2000 pesticide incident data from four state agencies (Agriculture, Ecology, Health, and Labor and Industries) as well as the Washington Poison Center. A detailed report will be available later in 2002.

Department of Agriculture

During 2000, the Washington State Department of Agriculture (WSDA) investigated 199 reported complaints made to the department regarding pesticide use, sales, distribution, applicator licensing, storage and building structure inspections for wood destroying organisms (WDO) (Table 2). After investigation, it was found that 156 (78%) involved pesticide applications and 43 (22%) were complaints unrelated to actual applications, such as licensing or structural inspections.

Table 2 WSDA Complaints And Violations 1992-2000

Year	Total Complaints	Violations Found
1992	558	264 (47%)
1993	400	166 (42%)
1994	383	138 (36%)
1995	259	87 (34%)
1996	251	104 (41%)
1997	204	110 (54%)
1998	204	116 (57%)
1999	192	101 (53%)
2000	199	121 (61%)

WSDA is required to respond to cases of human exposure within 24 hours of receipt. Investigation begins on other cases as soon as resources allow, generally within 2-3 days. In 2000, WSDA responded to ninety-three percent of all complaints within 24 hours.

Location

One hundred thirty-three (67%) of the 2000 (year) complaint investigations occurred in Eastern Washington; 66 (33%) were in western Washington. The eleven counties reporting the most incidents were: Yakima 26, Grant 21, Pierce 16, Benton 14, Chelan 13, Clark 10, Douglas 9, King 8, with 6 each from Franklin, Lincoln and Thurston.

Type of Activity Involved in Complaints

Table 3 shows the incidents with violations by type of activity from 1992 through 2000.

Table 3 WSDA Violations by Type of Activity 1992-2000

Activity	1992	1993	1994	1995	1996	1997	1998	1999	2000
Agricultural	158	75	46	26	29	40	54	50	48
Commercial/Industrial	32	60	44	24	27	22	22	19	33
PCO/WDO*	*	*	28	28	20	24	8	11	14
Residential (non commercial)	9	15	12	3	9	8	7	10	11
Right-of-Way**	**	**	**	**	3	10	12	1	8
Other (Licenses, Records, etc.)	65	16	8	6	16	6	13	10	7
Total Violations	**264**	**166**	**138**	**87**	**10**	**4110**	**116**	**101**	**121**

* Before 1994, Pest Control Operator (PCO) cases were classified as other and in 1996 WDO cases were included in with Pest Control Operator.

**Prior to 1996, Right -of -Way was included with Commercial/Industrial.

Nature of Pesticide Complaint

Drift exposure continues to be an area of concern with complaints resulting from overspray or misapplication. In 2000, 54 complaints concerned drift, 40 complaints concerned human exposure (some resulting from drift), misuse 23, licensing 20, direct spray 16, PCO/WDO inspections 9, bee kills 5, water contamination 5, animal incidents 4, miscellaneous 23. Children were involved directly or indirectly in 11 of the total 199 complaints.

When violations are evaluated by type of license involved, commercial applicators accounted for 31.5%, private applicators 22%, public operators 11%, unlicensed applicators 23.5% and others 12%, of the violations. WSDA licenses more private applicators than any other type of license but commercial applicators tend to make more applications and have more contact with the public over larger areas.

Severity of Reported Complaints

In 1996, WSDA began rating the severity of complaints. For the fifth year (2000), the majority (75%) had a low severity rating of two or less (Table 4).

Table 4 Severity Rating of WSDA Complaint Cases 1996 -2000

Rating	1996	1997	1998	1999	2000	Criteria
0	64	28	31	13	20	Problem not due to pesticides and/or no cause determined; PCO/WDO inspection with no violations
1	71	67	62	65	40	Pesticides involved, no residue, no symptoms occurred; possible pesticide problem, but not substantiated; issues involving records, registration, posting, notification (multiple chemical sensitivity) or licensing; DOH classified "unlikely" or "unknown"
2	79	64	70	72	89	Residue found, no health symptoms (human, animal); health symptoms not verified; multiple minor violations; off label use; worker protection violations; personal protective equipment violations with no health symptoms; plants with temporary or superficial damage only; PCO/WDO faulty inspections; DOH classified "possible."
3	22	30	31	24	31	Minor short-term health symptoms (rash, eye irritation, shortness of breath, dizzy, nausea, vomiting); bee kills less than 25 hives; minor fish kills; economic plant damage under $1000; evidence of deliberate economic fraud; DOH classified "probable."
4	11	8	9	15	17	Short-term veterinary or hospital care; bee kills over 25 hives; significant fish kills; significant economic plant damage (over $1000); environmental damage; illness involving children; DOH classified "probable."
5	4	7	1	3	2	Veterinary or hospital care overnight or longer; physician diagnosed children's illness as caused by pesticides; animal death due to pesticides; significant environmental damage; DOH classified "definite."
6	0	0	0	0	0	Human death due to pesticides.
Total	**251**	**204**	**204**	**192**	**199**	

Type of Pesticide Involved

In 2000, herbicides were involved in 100 complaints (50%) and insecticides in 58 complaints (29%). This is a decrease in the number of complaints involving insecticides and an increase in herbicide incidents compared to 1999.

Other products such as fungicides, disinfectants, rodenticides and surfactants made up the rest of the incidents. Many cases involved tank mixes of several products. The pesticides most frequently reported in complaints were glyphosate, 2,4-D, malathion and chlorpyrifos. Insecticide product use is changing with the cancellation of many previously registered uses and products.

Enforcement Actions

At the time of publication, the following corrective actions had been taken by the department: Notice of Correction 96, Notice of Intent (Fines, License Suspension) 4, Advisory Letter 4, Administrative (Pending) 13, Verbal Warning 1, Referred 2, Stop Sale 1, and No Action Indicated 78.

WSDA Summary

Complaint numbers were up slightly but not significantly from 1999. Cancellation and/or decreased usage of some of the organophosphate insecticides could account for the decrease in insecticide complaints. Glyphosate drift and/or intentional neighbor-to-neighbor misuse is a continuing problem but this type of incident generally does not result in health problems. Most human exposure cases appear to be due to preventable causes such as failure to observe wind direction, spraying when people are in the area, not wearing appropriate protection, and overspray near roads, rather than unavoidable accidents.

Department of Ecology

The Department of Ecology Spill Response Program maintains a database to track pesticide-related complaints reported to the department. The agency uses the data to determine where additional education is necessary to reduce pesticide impacts on human health and the environment. A summary of the pesticide data provided by this database is provided below.

In 2000, Ecology reported 63 pesticide-related complaints involving threats to air, water or/and soil. Twenty-two counties reported complaints with 37 from western Washington and 26 from eastern Washington. Sources of complaints show the majority, 38 (60 %) came from private citizens, seven came from state agencies, six came from local health or fire departments and 12 came from other sources. Pesticide-contaminated sites undergoing evaluation and/or remediation are not included in these data.

Ecology responded within 24 hours in 50 (79%) incidents. Fifty-two of the 63 complaints were resolved and closed in 2000. Twenty-eight (44%) complaints occurred in the agricultural environment, 15 (24%) in the commercial/industrial environment, and 20 (32%) stemmed from residential activities.

After Ecology responds and stabilizes the initial emergency, it often refers the complaint to another state or local agency that can more directly manage the situation. In 2000, Ecology referred 19 (30%) complaints to other agencies.

Four cases of human or animal illness resulted from smoke inhalation or an allergic reaction. Environmental impacts were documented in 11 cases, 22 complaints could not be substantiated, seven required some form of cleanup or removal of materials, and two are now a "remedial" site under Ecology's Toxics Cleanup Program. Five situations resulted in a Notice of Violation.

Table 5 shows the number of pesticide complaints by type.

Table 5 Department of Ecology pesticide complaints, 2000

Type of complaint	Number	percent
Pesticides threatening ground or surface water	20	32%
Pesticide disposal or waste concern	14	22%
Spills and fires	10	16%
Unsafe pesticide storage or handling	13	20%
Other or unknown	6	10%
Total	63	100%

Department of Health

DOH is required to investigate reported suspected pesticide exposures. In 2000, DOH investigated 302 reported incidents of suspected acute pesticide-related illnesses involving 388 individuals/cases (Figure 1). An incident may involve more than one case.

Reported Incidents and Cases 1992 - 2000

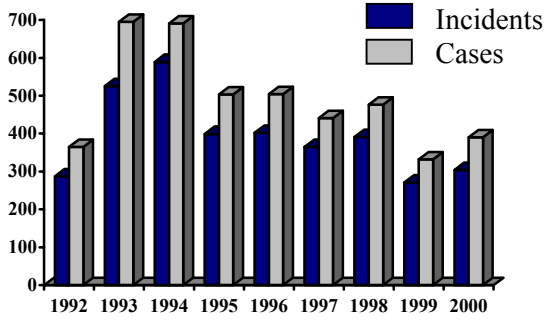

Figure 1

DOH responded to 97 percent of the incidents within 24 hours and to 99 percent within 48 hours. Reports of suspected pesticide-related illness were received from L&I (35%), WPC (29%), WSDA (27%), health care providers (2%) and others (7%).

Classification of Cases

DOH classifies each case based on its determination of how likely the symptoms were related to pesticide exposure. In 2000, the classification of the relationship between exposure and outcome was changed to be more comparable to that of other states. The classifications 'indirect' and 'unknown' were replaced with 'suspicious' and 'insufficient information'.

After investigation of the 388 total cases, DOH classified 203 (52%) as having signs and/or symptoms definitely, probably, or possibly related to pesticide exposure. The remaining 185 cases were classified as suspicious, unlikely, insufficient information, asymptomatic or unrelated (Table 6).

Severity

There were no life-threatening pesticide illnesses and no deaths reported in 2000. The number of definite, probable or possible pesticide exposures with severe symptoms increased from 2 for 1999 to 9 for 2000 (Table 6). Seven of the 9 severe cases were on-the-job exposures. Most symptoms experienced by cases were classified as mild (Table 6).

Table 6 Severity of Reported Pesticide Cases by DOH Classification 2000

Findings	Severity*					
	No symptoms	Mild	Moderate	Severe	Very Severe or Death	Total
	0	23	4	5	0	32
Probable	0	56	26	3	0	85
Possible	0	60	25	1	0	86
Suspicious	0	32	9	3	0	44
Unlikely	0	17	8	1	0	26
Insufficient Info	6	49	12	6	0	73
Asymptomatic	14	0	0	0	0	14
Unrelated	17	7	3	1	0	28
Total	37	244	87	20	0	388

*There were no extremely severe illnesses or deaths reported. Full definitions for the severity classification are in the 1999 PIRT Annual Report available under *Reports Published by Department of Health* at: www.doh.wa.gov/Publicat/Publications.htm

Table 7 DOH Comparison of Severity 1995 - 2000
Total cases and DPP (definite, probable and possible cases)

	1995		1996		1997		1998		1999		2000		Total	
	Total	DPP	Total	DPP	Total	DPP	Total	DPP	Total	DPP	Total	DPP	Total	DPP
No symptoms	110	0	103	0	77	0	82	0	46	0	37	0	**455**	**0**
Mild	223	122	236	163	301	173	309	167	247	124	244	139	**1,600**	**888**
Moderate	151	86	112	67	55	38	73	37	35	14	87	55	**513**	**297**
Severe I	17	6	11	7	7	3	9	8	4	2	20	9	**68**	**35**
Severe II	1	1	1	0	1	0	3	2	0	0	0	0	**6**	**3**
Death	0	0	1	0	0	0	0	0	0	0	0	0	**1**	**0**
Total	**502**	**215**	**504**	**237**	**441**	**214**	**476**	**214**	**332**	**140**	**388**	**203**	**2,643**	**1,223**

Occupational Cases of Pesticide Related Illness

Of the 203 cases classified as definite, probable or possible (DPP) pesticide exposures, 115 occurred while on-the-job compared to the 92 occupational cases in 1999.

Eighty-seven of the 115 occupational DPP cases were agricultural and 28 were non-agricultural. The number of agricultural cases had dropped in 1999 to 48 but in 2000, returned to the same level as in 1998 when there were 88.

Forty-seven (54%) of the 87 occupational agricultural DPP cases occurred in the tree fruit industry. The remaining cases occurred in the vegetable crop, grain crop, hops, nursery, greenhouse and livestock industries.

Pesticide drift (39), direct spray (32) and direct contact (26) as in exposure to a spill or leaking equipment accounted for the most occupational exposures. Residues on treated surfaces such as plants, carpets, or animals were responsible for 12 cases. (A case may have more than one type of exposure.)

Of the 28 non-agricultural, occupational cases, seven occurred from pesticide applications at single family residences. The rest occurred in roadway (5), industrial (5), office (4), residential institution (3) or other settings.

Non-Occupational Cases of Pesticide Related Illness

There were 88 cases (DPP) classified as non-occupational pesticide illness. Sixty-one individuals (69%) were exposed while at residences. Thirty-six (44%) of the 88 non-occupational exposures were from applications by non-licensed persons. All 36 applications occurred at residences. Nine non-occupational illnesses involved pesticide applications to hair, skin or clothing. Twenty-six (30%) of the 88 cases were individuals exposed to agricultural applications.

School Incident

An early morning pesticide application to a potato field resulted in 31 complaints of illness at three nearby schools. Investigation determined that 24 of the 31 complaints were definitely, probably or possibly related to the application. The persons ill included eight teachers, one school employee and 15 students.

Incidents Involving Children

Fifty-six (14%) of the total 388 reported cases were 18 years of age and younger.

Thirty-one (55%) of the 56 cases were determined to be definitely, probably or possibly related to pesticide exposure. Sixteen of the 56 cases were related to agricultural exposures; one child was at home and 15 students (one incident) were at school. Of the 15 non-

agricultural exposures, 13 were exposed at home, one was exposed while employed to apply herbicide on a roadway and the exposure site was unknown for one.

Of the 31 definite, probable or possible cases, 11 were under the age of six. Four were ages 6-10, and 16 were ages 11-18. Two were 18 years old and were employed at the time of their exposure.

DOH Summary

In 2000, pesticide related incidents reported to DOH increased by 11% from 271 in 1999 to 302 in 2000.

DOH classified 203 (52%) of the 388 investigated cases as having signs and/or symptoms definitely, probably or possibly related to pesticide exposure. Occupational exposures accounted for 115 of the 203 cases, a 25% increase from 1999. Direct exposure to pesticides by drift, spray, leaks or spills accounted for 84% of occupational cases. Thirty-one DPP cases (15%) involved individuals 18 years of age and younger.

Department of Labor and Industries

L&I responds to concerns from workers exposed to pesticides through two divisions: the Washington Industrial Safety and Health Act (WISHA) Services Division, and the Insurance Services Division, Claims Administration Program. In 2000, L&I WISHA Services Division conducted 34 investigations involving pesticide handling and use complaints with 30 resulting in citations being issued against the employer. The Insurance Services Division, Claims Administration Program received 180 claims relating to pesticide illness.

WISHA Service Division

In 2000, WISHA staff performed 34 pesticide related safety and health investigations in the workplace; 31 in Eastern Washington and 3 in Western Washington. These investigations occurred in both agricultural and nonagricultural environments. Twenty-four involved orchards. The remaining included three other farms (berries, potatoes), three crop preparation companies, one pest control company, one nursery, one dairy and one mushroom farm. Five of the 34 were employee or employee representative initiated complaints. Eight investigations were the result of referrals from within the agency or from other state agencies. Nineteen were scheduled inspections identified through the L&I scheduling list. Violations were discovered in 30 of the 34 investigations (15 had monetary penalties). The following violations were most frequently cited:

1) inadequate decontamination supplies and emergency eyewash facilities
2) inadequate hazard communication program
3) inadequate Personal Protective Equipment (PPE) supplied, maintained and storage location
4) inadequate respirator program or fit testing
5) incomplete or no spray records and central posting to inform employees of pesticide applications
6) no accident prevention, safety meetings
7) lack of hazardous chemical labeling
8) no first aid training, kits, or cards

L&I Claims Insurance Services Division, Claims Administration Program

The Insurances Services Division; Claims Administration Program, processes worker claims initiated by on-the-job injuries and illnesses including claims involving pesticides.

In addition, these pesticide claims are referred to DOH for further investigation. In 2000, 180 claims were investigated by DOH because of health concerns. This compares with 183 investigated in 1999 and 269 in 1998.

In 2000, 131 (73%) claimants were exposed while working in agriculture and 49 (27%) were in a non-agricultural setting. Four of the non-agriculture workers were exposed to agricultural pesticide drifts. Ninety-seven claims involved workers in the fruit industry and 14 were in field crops.

After investigation of the 180 pesticide claims, DOH classified 80 as having signs and/or symptoms definitely, probably or possibly related to pesticide exposure.

In 2000, 99 percent of all initial medical visits were paid. The claims were determined in accordance with the following definitions (Table 8):

Medical Only/Non-Compensable Claim: a worker experienced symptoms that he/she believes occurred from exposure on-the-job and seeks medical evaluation. The physician finds the symptoms related to the exposure and there is objective evidence of injury. Therefore, the claim is allowed and medical evaluation and any follow-up medical care/treatment costs are paid.

Table 8 Status of L&I Claims Related to Pesticides 1995-2000

Claim Type	1995		1996		1997		1998		1999		2000	
Medical Only/ noncompensable	134	55%	97	44%	108	46%	155	58%	107	59%	115	64%
Time loss/ compensable	9	4%	8	4%	14	6%	11	4%	11	6%	11	6%
Rejected	98	40%	111	50%	101	43%	100	--	63	34%	52	29%
Pending/Unknown	3	1%	5	2%	--	--	2	1%	1	--	2	1%
Kept on salary	1	--	--	--	--	--	1	--	1	--	--	--
Total	245		222		235		269		183		180	

The employee misses less than three days of work. These lost workdays are not reimbursed to the employee.

Time Loss/Compensable Claim: A worker has an allowable claim and misses more than three days of work immediately following an exposure on the job. The worker is paid a portion of salary while unable to work. All related medical costs are covered.

Rejected Claims: Initial diagnostic and evaluation medical costs are covered but the claim is rejected because objective evidence is lacking to relate the symptoms to the workplace exposure. Many claims are rejected because the symptoms have resolved by the time treatment is obtained; there is no objective evidence of injury; or, exposure cannot be confirmed or documented. A rejected status prevents the worker from reopening a claim based on original symptoms.

Costs of initial medical visits are usually paid.

Pending: Additional information is being collected on the claim before a determination can be made.

Kept on Salary: The employer elects to pay the claimant's salary instead of L&I paying time loss payments while the employee is recovering from an injury or illness.

Washington Poison Center

In 2000, the Washington Poison Center (WPC) received 118,404 statewide calls. Two percent (2,326) of these calls were related to pesticides (Table 9).

Table 9 WPC Pesticide Calls 1999-2000

Pesticide	1999	2000
Fungicide	61	99
Herbicide	425	453
Insecticide	1562	1229
Insect Repellent	76	151
Rodenticide	399	394
Total pesticide	2523	2326
% of total WPC calls	2%	2%
Total WPC calls	133,240	118,404

The number of WPC pesticide-related calls has steadily decreased from a high of 5,231 in 1990 to 2,326 in 2000. Increased education and awareness of risks by the public may have contributed to the decrease in calls. Easy access to pesticide information on the internet may also have contributed.

Pesticide poisonings are a reportable condition in Washington State (WAC 246-100-217). WPC provides DOH information on all calls regarding patients exposed to pesticides and seen by a health care provider. When WPC refers a caller to any health care provider, this information is also provided to DOH.

Table 10 WPC Pesticide Calls by Age 2000

Pesticide Type	<6 years old	6-19 years old	Total Human Exposure Calls
Fungicides	13	12	99
Herbicides	123	59	453
Insecticides	382	154	1229
Insect repellents	103	22	151
Rodenticides	304	22	394
Total*	925	269	2326

In 2000, DOH received 204 referrals from WPC where there were reported signs and/or symptoms of pesticide illness or when a pesticide exposure needed to be followed for development of symptoms. Of the 204 referrals, 105 did not meet the DOH criteria for investigation in that the exposure had occurred more than 3 months before the report, no exposure-health effect relationship seemed to be present, or there was insufficient information to substantiate actual pesticide exposure.

There were 112 individuals involved in the remaining 99 incidents. DOH classified the 112 pesticide exposures as definite (17), probable (15), possible (37), unlikely (6), unrelated (8), unknown (15) and asymptomatic (3). The majority of these cases had mild or no symptoms (86), 20 had moderate symptoms, and 6 had severe symptoms. There were no life threatening pesticide-related exposures reported.

As in previous years, the vast majority (93%) of pesticide related calls to WPC involved accidental exposure.

Forty percent of the WPC pesticide calls involved children less than six years of age. Table 10 illustrates WPC calls by pesticide type for the different age groups.

Half (52%) of the pesticide cases involved insecticides and 20 percent involved herbicides.

WPC Summary

In 2000, the number of pesticide related calls to the Washington Poison Center decreased by eight percent from the previous year. Calls involving insect repellents doubled from 76 in 1999 to 151 in 2000 while calls involving fungicides increased from 61 to 99 but there were 333 fewer calls involving insecticides in 2000 (1229) than in 1999 (1562).